Meat quality traits of Béni Guil lamb raised in eastern Morocco

(The Fourth International American Moroccan Agricultural Sciences Conference - AMAS Conference IV _ May 9-11, 2018, Meknes, Morocco)

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Introduction: In Morocco, Breeding is one of the primordial sectors in the national economy, playing an important socio-economic role. The total workforce exceeds 29 million head, with sheep accounting for 20 million head. The sheep meat of Béni Guil breed is a protected Geographical Indication (PGI) of eastern Morocco and is one of the main local meats that is highly appreciated by the consumer because of its tasty and sensorial properties. This study aims to determine the physicochemical quality parameters of Béni Guil PGI lamb meat and to evaluate its nutritive value. Chemical analyses focus on the intramuscular fat (IMF) content, FA profile, protein content and amino acid composition.

Material et methods

Animal Material

-Twelve 6–7 month old female lambs were selected with the assistance of an official of ANOC – Oujda, Morocco.

Slaughtering and sample preparation

-The animal were slaughtered in slaughterhouse of Oujda city

- Lyophilised, Crushed, homogenous and stored under vacuum in sachets sterilised at -18 °C.

Method analysis

-Dry matter: Dry at 105 ° C;

-Total Fat: Bligh & Dyer (1959);

- Fatty Acids: (GC-FID);

-Amino Acids (AA) : (HPLC-UV);

Results

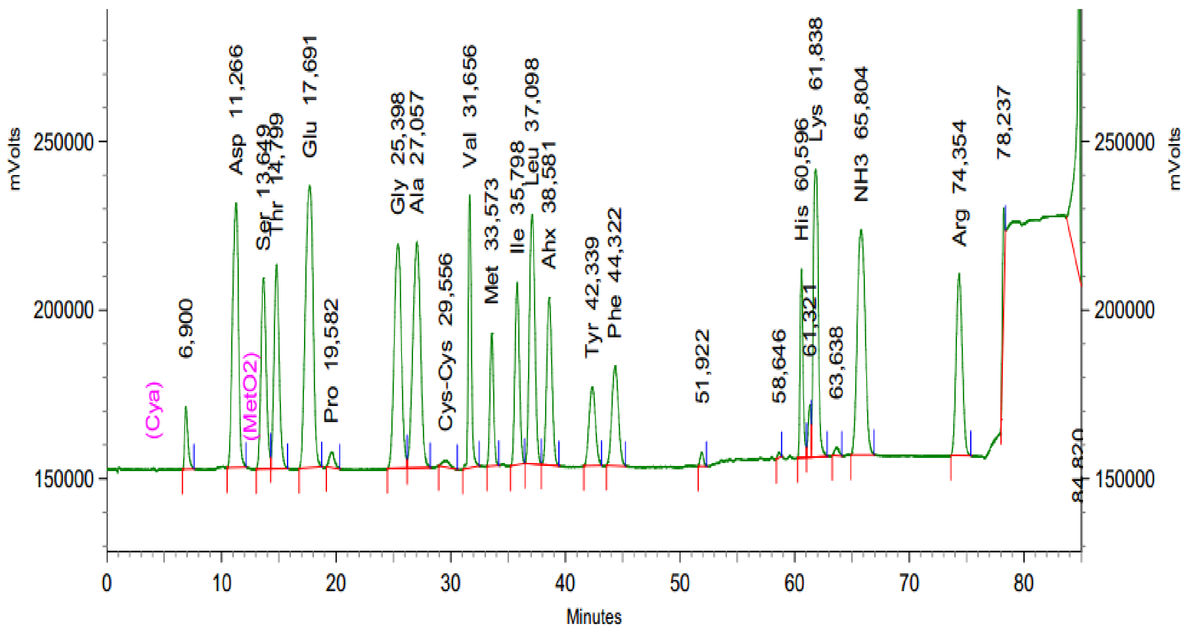

Figure 1 : Beni Guil LDM's Meat Amino acids composition**.**

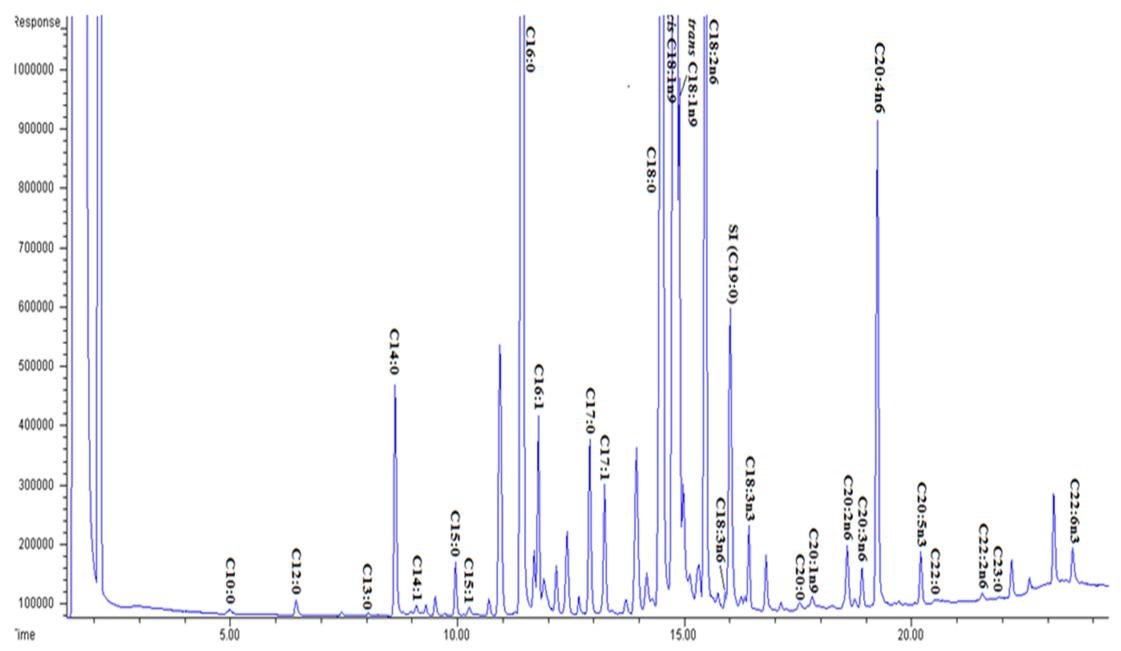

Figure 2 : Meat's fatty acids profile of **Beni Guil** breed (GC-FID

Table 1: Fatty acids ratio and sums of Béni-guil sheep meat

Fatty Acids	Content
SFA	49,45
PUFA	12,40
MUFA	38,48
UFA	50,88
PUFA/SFA	**0,25**
UFA/SFA	1,04
PUFA n-6	9,62
PUFA n-3	2,58
PUFA n-6/PUFA n-3	**3,78**
IT	1,44
IA	0,82
DFA	67,90

SFA: Saturated fatty acid; **MUFA**: Monounsaturated fatty acid; **PUFA**: Polyunsaturated fatty acid; **UFA**: Unsaturated fatty acids; **OFA**: Odd Fatty Acids; **DFA**: Desirable fatty acids = C18:0+UFA.
IT = Thrombogenic Index [C14:0+C16:0+C18:0]/[(0.5*MUFA)+(0.5*∑n−6)+(3*∑n−3)+(n–3/n−6)].
IA = Atherogenic Index [(4*14:0) + 16:0] / [(PUFA)+(MUFA)].

Table 2 Protein value of Béni-guil sheep meat

AAE	% EAA *LLM* Prot.	% EAA Ref. Prot.
Cys-Met	2.31	1.7
His	2.47	1.6
Ile	3.15	1.3
Leu	5.11	1.9
lys	4.60	1.6
Phe	3.17	1.9
Thr	2.64	0.9
Val	3.07	1.3
CI	**132**	
PDCAAS	**124**	

CI: Chemical Index ;
PDCAAS : protein digestibility-corrected amino acid score

Discussion and Conclusion

Sheep breeding is a long tradition and a crucial component in agricultural systems of the steppe zones of highlands in eastern Morocco. This region is characterised by the specificity of its breeding system of sheep, principally, pasture-based. Due to the quality of meat of the Béni Guil breed, the Béni Guil lamb has been recently labelled as a protected geographical indication. This lamb meat constitutes an important protein source for the population and it is highly appreciated by consumers. This study confirms the nutritional quality of this meat. Béni Guil is a pasture lamb, and the IMF of its meat is characterised by more UFAs than SFAs and, particularly, by the quality of its FA profile (Table 1). Chemical analysis showed that Béni Guil PGI lamb meat has high nutritional and biological values due to its richness in PUFAs and essential amino acids (Table 1 & 2). Consequently, the consumption of this meat meets human nutritional needs.